

Appl. No. 09/168,644
Response Dated January 30, 2006
Reply to Office Action dated September 30, 2005,

REMARKS

In view of the following remarks, Applicant respectfully requests reconsideration of the present application, and immediate passage to issue.

Objections and Rejections

The Office Action dated September 30, 2005:

1. rejects claim 1 under 35 U.S.C. § 102(e) as being anticipated by the Gordon patent;
2. rejects claims 2, 3, and 5-7 under 35 U.S.C. § 103(a) as being unpatentably obvious based upon the Gordon patent in view of United States Patent no. 5,838,678 entitled "Method and Device for Preprocessing Streams of Encoded Data to Facilitate Decoding Streams Back-to Back" which issued November 17, 1998, on an application filed July 24, 1996, by Joseph W. Davis and Shawn M. Hayes ("the Davis, et al. patent"); and
3. rejects claim 4 under 35 U.S.C. § 103(a) as being unpatentably obvious based upon the Gordon patent in view of United States Patent no. 6,310,919 entitled "Method and Apparatus for Adaptively Scaling Motion Vector Information in an Information Stream Decoder" which issued October 30, 2001, on an application filed Septem-

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ber 25, 1998, by Dinei Afonso Ferreira Florencio ("the Florencio patent").

The Claimed Invention

As recited in twice amended, pending independent method claim 1,⁴ the present invention encompasses:

[a] method for producing a compressed video bitstream that includes compressed video data for a plurality of frames from data that specifies a single still image

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assembling the compressed video bitstream by appropriately combining data for:

at least a single copy of the stored I frame;

at least one null frame; and

various headers required for decodability

of the compressed video bitstream;

whereby decoding of the compressed video bitstream produces frames of video which produce images that do not appear to pulse visually. (Emphasis supplied)

The invention solves a problem that appears in images produced by a conventional Moving Picture Experts Group ("MPEG") decoder when decoding a conventionally MPEG encoded video bitstream that reproduce a still image, particularly a still image containing text. For conventionally encoded MPEG compressed video data, detail in decoded MPEG still images tends to be lower at the beginning of each group of pictures ("GOP") when an intra ("I")

⁴ Pending independent claim 1 was last amended in a response to a June 8, 2001, Office Action that was received by the USPTO on October 9, 2001, i.e. more than fifty-one (51) months ago (more than four (4) years ago).

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frame is decoded, increases during decoding of successive predicted ("P") frames and bidirectional ("B") frames in the GOP, only to decrease again upon decoding the next I frame. Thus, a decoding of the MPEG compressed video bitstream of a still image frequently produces a video image that appears to pulse visually, usually at a frequency identical to the frequency at which GOPs occur in the compressed video bitstream, e.g. twice per second. This visual pulsing of the still image produced by decompressing a MPEG compressed video bitstream in many instances makes them commercially unacceptable.

The Primary Reference
The Gordon Patent

The Gordon patent's invention provides a rapid, computationally efficient method for generating well-behaved movie information screen ("MIS") information streams. "The above-described invention provides an information stream that will produce, upon a presentation device, a substantially motionless image"⁵"

In its "Background of the Disclosure" the Gordon patent states that the then:

existing methods for generating MIS information streams disadvantageously require extensive encoding of video information to produce well-behaved bitstreams, i.e., bitstreams that do not cause decoder buffer underflow or

⁵ See the Gordon patent in col. 7 at lines 50-52.

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overflow. For example, an MIS information stream generated by repeatedly encoding an image will produce a well-behaved MIS bitstream at the cost of significant computational resources and time (e.g., two to 30 minutes to encode a two minute MIS display or presentation)." (Col. 1, line 61 - col. 2, line 3)

The Gordon patent's "Summary of the Invention" in col. 2 beginning at line 9 expressly states that:

[t]he invention comprises a method and apparatus for processing an image to produce an encoded video information stream comprising a sequence of replicated group of picture (GOP) information structures, each GOP including an intra-coded frame (I-frame) and a plurality of forward predictive coded frames (P-frames), wherein the I-frame of the initial GOP is formed by intra-coding the still image, and each P-frame comprises, e.g., a substantially zero motion vector P-frame.

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Specifically, a method according to the invention for processing an image to produce a compressed information stream comprises the steps of: intra-coding the image to produce an intra-coded information frame (I-frame); associating the intra-coded information frame with a plurality of forward predicted information frames (P-frames) to form a group of pictures (GOP); and replicating the GOP to produce the compressed information stream.

An apparatus according to the invention for processing an image to produce an MPEG-like information stream comprises: a frame encoder, for producing an intra-coded (I-frame) in response to said image, and for producing N number of forward predicted information frames (P-frames) in response to said I-frame, where N is an integer; a memory, for storing said I-frame and said N number of P-frames; and a controller, for causing said memory to repetitively output said I-frame and said N number of P-frames as a video elementary stream. (Emphasis supplied.)

Regarding P-frames, the specification of the Gordon patent describes two (2) embodiments of its invention.

1. A MIS generator apparatus 100 according to the invention depicted in the block diagram of FIG. 1⁶ that preferably uses pre-defined data structure NULL P-frames that are simply inserted into the appropriate memory location following the stored I-frame.⁷
2. An embodiment in which a frame encoder 110, included in the apparatus 100 depicted in FIG. 1, actually performs a predictive encoding operation for each of N P-frames that form the initial GOP structure whereby the frame encoder 110 provides both the GOP's:
 - a. I-frame; and
 - b. N P-frames.⁸

Regarding the first embodiment for the MIS generator apparatus 100 illustrated in FIG. 1 the Gordon patent in col. 4 at lines 53-63 expressly states as follows.

In the above-described apparatus 100, the GOP replicator 120 utilizes the insertion of N NULL P-frames, where N is an integer, after an I-frame to form a GOP.

⁶ See the Gordon patent in col. 3 at lines 13-14.

⁷ See the Gordon patent in col. 4, line 55-58 and col. 6, lines 55-56.

⁸ See the Gordon patent in col. 4, line 66 - col. 5, line 6.

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In this embodiment of the invention each of the NULL P-frames comprises a pre-defined data structure that is simply inserted into the appropriate memory location following the stored I-frame. In the case of an MPEG2 information stream, a NULL frame utilized by the inventor comprises a 38 byte data structure that informs the decoder to utilize all the macroblocks from the previous anchor frame and to do so without displacing the macroblocks (i.e., zero motion vectors). (Emphasis supplied.)

Regarding the second alternative embodiment for the MIS generator apparatus 100 illustrated in FIG. 1 as described in col. 4, line 66 - col. 5, line 6, the Gordon patent further expressly discloses:

[a] NULL forward predictive coded frame comprises a "zero motion vector frame (i.e., a P-frame having relatively inconsequential motion vectors) based on an anchor frame, e.g., the still image representative I-frame. Thus, each NULL [forward predictive] P-frame, when decoded, will produce a picture that is virtually identical to the anchor frame from which it is based. (Col. 3, lines 41-47) (Emphasis supplied.)

Predictive encoding of the NULL P-frames is not the preferred embodiment of the invention; however, such [forward] predictive encoding may be convenient in some cases where the encoder circuitry or functionality of a system is not readily adaptable to the preferred NULL P-frame insertion process. (Col. 6, lines 55-60) (Emphasis supplied.)

It must be noted that the P-frames may be NULL P-frames (as previously described) or P-frames that have been [forward] predicted, in the standard manner, using the initial I-frame. (Col. 7, lines 54-57) (Emphasis supplied.)

A description of the Gordon patent's invention as illustrated in a flow diagram of FIG. 3 appears in col. 6 at lines 27-49.

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The routine 300 then proceeds to step 326, where a query is made as to whether the N P-frames utilized in the formation of the GOP structure are to be predicted (using, e.g., the frame encoder) or inserted (i.e., NULL P-frame insertion). If the query at step 326 is answered in a manner indicating that the P-frames are to be inserted, then the routine 300 proceeds to step 335, where N NULL P-frames are added to the GOP buffer after the I-frame stored in the buffer at step 325. The routine 300 then proceeds to step 340.

If the query at step 326 is answered in a manner indicating that the P-frames are to be predicted, then the routine 300 proceeds to step 327, where the encoded I-frame is stored in, e.g., an anchor frame buffer 111 associated with the frame encoder 110. The routine 300 then proceeds to step 328, where the frame encoder performs N forward predictive operations utilizing the stored I-frame (or the original input frame I) to produce N NULL P-frames. The routine 300 then proceeds to step 329, where the N NULL P-frames are stored in the GOP buffer after the I-frame stored in the buffer at step 325. Thus, a single group of pictures (GOP) is produced comprising an I-frame followed by N P-frames. In the exemplary embodiment N is equal to 14, however, N can be any number. The routine 300 then proceeds to step 340. (Emphasis supplied.)

Legal Principles Applicable to 37 C.F.R. § 1.131 Declarations

A rejection based on 35 U.S.C. § 102(e) can be overcome by:

(A) Persuasively arguing that the claims are patentably distinguishable from the prior art;

* * *

(D) Filing an affidavit or declaration under 37 C.F.R. § 1.131 showing prior invention, if the reference is not a U.S. patent . . . claiming the same patentable invention as defined in 37 C.F.R. § 41.203(a). (MPEP Eighth Edition Rev. 4, October 2005, pp. 700-26, § 706.02(b)) (Emphasis supplied.)

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Affidavits or declarations under 37 CFR 1.131 may be used, for example:

* * *

(B) To antedate a reference that qualifies as prior art under 35 U.S.C. 102(e), where the reference has a prior art date under 35 U.S.C. 102(e) prior to applicant's effective filing date, and shows but does not claim the same patentable invention. (MPEP Eighth Edition Rev. 4, October 2005, pp. 700-249, § 715) (Emphasis supplied.)

Argument

Applicant respectfully submits that pending independent claim 1 traverses rejection under 35 U.S.C. § 102(e) based upon the Gordon patent because:

1. the Gordon patent claims differ patentably from the subject matter encompassed by pending independent claim 1; and
2. the Gordon patent lacks an enabling disclosure of pre-defined data structure NULL P-frames.⁹

The Gordon Patent's Claimed Invention

The Gordon patent includes three (3) independent claims 1, 10 and 13. These independent claims respectively encompass:

⁹ See the Gordon patent in col. 4 at lines 53-63.

1. "forwarded predicted information frames (P-frames)"
associated with an intra-coded information frame
(I-frame);¹⁰
2. "substantially zero motion vector forward predicted
(P-frame) information frames" associated with an intra-
coded information frame (I-frame);¹¹ and
3. "a frame encoder, for producing an intra-coded (I-frame)
in response to said image, and for producing forward
predicted information frames (P-frames) in response to
said I-frame."¹²

The text of independent claim 13 expressly encompasses only the second, less preferred embodiment of the invention described in col. 4, line 66 - col. 5, line 6 which describes using a plurality of forward predictive coded frames (P-frames) created by the apparatus 100 actually performing a predictive encoding operation. Since the Gordon patent's independent claims, i.e. claims 1, 10 and 13, all use the phrase "forwarded predicted information frames (P-frames)" independent claims 1 and 10 must also encompass only

¹⁰ See the Gordon patent independent claim 1, col. 8, lines 53-57.

¹¹ See the Gordon patent independent claim 10, col. 9, lines 32-38.

¹² See the Gordon patent independent claim 13, col. 10, lines 6-9.

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the second, less preferred embodiment of the invention described in col. 4, line 66 - col. 5, line 6 which describes using a plurality of forward predictive coded frames (P-frames) created by the apparatus 100 actually performing a predictive encoding operation.

Confirming the preceding constructions of the Gordon patent's independent claims 1, 10 and 13, the reference's "Background of the Disclosure" in col. 1 at lines 28-38 characterizes compression and delivery of video as follows.

In particular, the above-referenced standards,¹³ and other "MPEG-like" standards and techniques, compress, illustratively, video information using intra-frame coding techniques (such as run-length coding, Huffman coding and the like) and inter-frame coding techniques (such as forward and backward predictive coding, motion compensation and the like). Specifically, in the case of video processing systems, MPEG and MPEG-like video processing systems are characterized by prediction-based compression encoding of video frames with or without intra- and/or inter-frame motion compensation encoding. (Emphasis supplied.)

The Gordon patent's "Summary of the Invention" appearing in col. 2, lines 10-42 also confirms that independent claims 1, 10 and 13 encompass only the second, less preferred embodiment of the invention described in col. 4, line 66 - col. 5, line 6 which describes using a plurality of forward predictive coded frames

¹³ MPEG-1 and MPEG-2 and ATSC A/53 identified in col. 1, lines 12-23.

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(P-frames) created by the apparatus 100 actually performing a predictive encoding operation.¹⁴

Based upon:

1. the texts of the Gordon patent's independent claims 1, 10 and 13 excerpted above;
2. the description of compression and delivery of video described in the Gordon patent's "Background of the Disclosure" excerpted above;
3. the Gordon patent's "Summary of the Invention;" and
4. upon the previously excerpted texts describing in detail the Gordon patent's invention;

Applicant respectfully submits the Gordon patent's independent claims, i.e. claims 1, 10 and 13, are all limited to the second, less preferred embodiment of the invention described in col. 4, line 66 - col. 5, line 6 which describes using a plurality of forward predictive coded frames (P-frames) created by the apparatus 100 actually performing a predictive encoding operation.¹⁵

¹⁴ The word "null" appears nowhere in the Gordon patent's "Summary of the Invention."

¹⁵ Applicant does not argue or even suggest that the Gordon patent lacks an enabling disclosure of forward predictive coded frames (P-frames) generated by the apparatus 100 actually performing a predictive encoding operation.

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**The Present Application
and The Gordon Patent
Claim Different Inventions**

Based upon the preceding analysis of the Gordon patent's independent claims 1, 10 and 13, and upon the preceding description of presently pending independent claim 1, Applicant respectfully submits that the present application and the Gordon patent claim different inventions. The present application discloses only pre-defined data structure NULL P-frames as contrasted with the Gordon patent's claimed second, less preferred embodiment of the invention described in col. 4, line 66 - col. 5, line 6 of the Gordon patent which describes using a plurality of forward predictive coded frames (P-frames) created by the apparatus 100 actually performing a predictive encoding operation. Accordingly, in accordance with MPEP § 715 excerpted above Applicant respectfully submits that:

1. the July 12, 2002 Conover declaration traverses the rejection of independent claim 1 under 35 U.S.C. § 102(e) because the Gordon patent "shows but does not claim the same patentable invention;"¹⁶ and

¹⁶ Affidavits or declarations under 37 CFR 1.131 may be used to antedate a reference that qualifies as prior art under 35 U.S.C. 102(e), where the reference has a prior art date under 35 U.S.C. 102(e) prior to applicant's effective filing date, and shows but does not claim the same patentable invention. (MPEP Eighth Edition Rev. 4, October 2005, pp. 700-249, § 715) (Emphasis supplied.)

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2. therefore the abandonment of the rejection of pending independent claim 1 under 15 U.S.C. § 103(e) based upon the Gordon patent appearing in the October 11, 2002, Office Action is sound and proper.

**The Gordon Patent Lacks
an Enabling Disclosure of
Pre-Defined Null P-Frames**

Assuming merely for the sake of argument that, contrary to the preceding analysis, the Gordon patent did in fact include a claim which validly encompasses pre-defined data structure NULL P-frames, Applicant respectfully submits that controlling legal authority bars rejecting pending independent claim 1 under 35 U.S.C. § 102(e) based upon the Gordon patent because the reference lacks an enabling disclosure of pre-defined data structure NULL P-frames.¹⁷

Applicant first observes that the Gordon patent lacks a description of pre-defined data structure null frames in a detail which corresponds to the description thereof appearing on pages 20-30 of the present application. Applicant further observes that the most detailed description of the Gordon patent's pre-defined data structure NULL P-frames appears in col. 4, lines 43-65. In that text the Gordon patent expressly states that "[i]n the case of

¹⁷ See citations in footnote no. 3 supra.

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an MPEG-2 information stream, a NULL frame utilized by the inventor comprises a 38 byte data structure"

Regarding the preceding excerpt from the Gordon patent, the July 12, 2002, Conover declaration in paragraph 21.c. on pages 5-6 states:

- c. The Gordon patent states in col. 4 at lines 58-63 that:

[i]n the case of an MPEG2 information stream, a NULL frame utilized by the inventor comprises a 38 byte data structure that informs the decoder to utilize all the macroblocks from the previous anchor frame and to do so without displacing the macroblocks (i.e., zero motion vectors).

MPEG-2 cannot escape past a slice, and a slice can not extend past a horizontal scan line. Therefore, the preceding statement is incorrect because the minimum amount of data required to encode a single 720x480 frame in accordance with the MPEG-2 specification is 318 bytes, not 38 bytes as disclosed in the text quoted above from the Gordon patent.

Thus, the July 12, 2002, Conover declaration proves that the only detail provided in the Gordon patent regarding pre-defined data structure NULL P-frames, i.e. that a 38 byte data structure provides a NULL frame for an MPEG-2 information stream, is false.

Since the Gordon patent fails to disclose or to even suggest a pre-defined data structure that provides a NULL frame for an MPEG information stream and since the Gordon patent's limited disclosure

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on that subject is false,¹⁸ Applicant respectfully submits that the reference lacks an enabling disclosure of pre-defined data structure NULL P-frames. Consequently, even if one were to assume merely for the sake of argument that the Gordon patent included a claim which validly encompasses pre-defined data structure NULL P-frames, Applicant respectfully submits that:

1. controlling legal authority bars rejecting pending independent claim 1 under 35 U.S.C. § 102(e) based upon the Gordon patent because the reference lacks an enabling disclosure of pre-defined data structure NULL P-frames;¹⁹
and
2. therefore the abandonment of the rejection of pending independent claim 1 under 15 U.S.C. § 103(e) based upon the Gordon patent appearing in the October 11, 2002, Office Action is sound and proper.

¹⁸ Arguably, the Gordon patent's false disclosure regarding a pre-defined data structure for NULL P-frames would lead one of ordinary skill away from rather than toward the invention encompassed by pending independent claim 1.

¹⁹ See citations in footnote no. 3 supra.

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**Applicant Cannot
Suggest an Interference
With the Gordon Patent**

As analyzed above, the Gordon patent's independent claims 1, 10 and 13 are limited to the second, less preferred embodiment of the invention described in col. 4, line 66 - col. 5, line 6 which describes using a plurality of forward predictive coded frames (P-frames) created by the apparatus 100 actually performing a predictive encoding operation. The present application does not disclose nor does it suggest using a plurality of forward predictive coded frames (P-frames) created by an apparatus actually performing a predictive encoding operation.

Consequently, Applicant cannot copy any claim from the Gordon patent because copying any claim from the Gordon patent would constitute new matter for the present application. 37 C.F.R. § 41.202(a)(5) expressly requires that in suggesting an interference:

(5) If a claim has been added or amended to provoke an interference, [applicant must] provide a claim chart showing the written description for each claim in the applicant's specification,

Based upon the disclosure in the present application, if a claim involving using a plurality of forward predictive coded frames (P-frames) created by an apparatus actually performing a predictive encoding operation were to be copied from the Gordon patent into the present application, Applicant could not provide the claim

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chart required by 37 C.F.R. § 41.202(a)(5). Therefore, Applicant cannot comply with the requirements of 37 C.F.R. § 41.202(a) for "Suggesting an Interference."

Conclusion

For the reasons set forth above, Applicant respectfully submits that the prior abandonment of the rejection of independent claim 1 under 35 U.S.C. § 102(e) based upon the Gordon patent for more than three and one-half (3-½) years in both the October 11, 2002, in the March 18, 2003, Office Actions and during Applicant's successful appeal of claim rejections appearing in those two (2) Office Actions estops rejecting independent claim 1 on that basis now.

Furthermore, even if the rejection of independent claim 1 appearing in the September 30, 2005, Office Action were proper, Applicant respectfully submits that the July 12, 2002, Conover declaration traverses rejecting that claim under 35 U.S.C. § 102(e) based upon the Gordon patent because the present application and the Gordon patent claim patentably different inventions.

Lastly, even if the present application's independent claim 1 and the Gordon Patent claimed the same invention, that claim traverses rejection under 35 U.S.C. § 102(e) because the Gordon patent lacks an enabling disclosure of pre-defined data structure

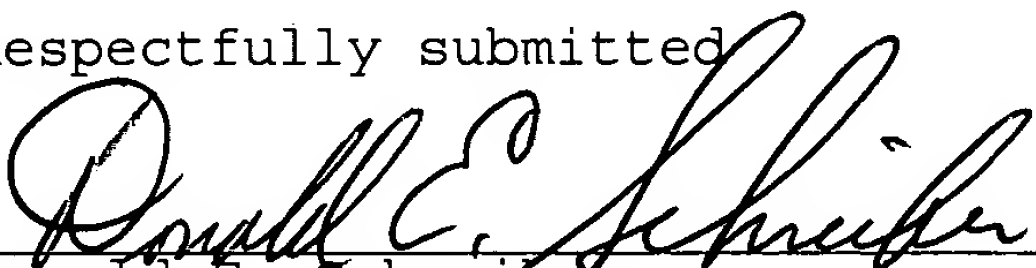
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NULL P-frames, i.e. the subject matter of the present application encompassed by pending independent claim 1.

Therefore, Applicant respectfully submits that:

1. independent claim 1 together with claims 2-7 depending therefrom are all patentable over the Gordon patent;
2. the rejection of independent claim 1 appearing in the September 30, 2005, Office Action must be withdrawn together with the rejection of claims 2-7 depending therefrom; and
3. the present application must pass promptly to issue.

Respectfully submitted


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